

CLAIMS

1. Device for measuring the density and/or specific gravity of a liquid of the type comprising an enclosure (1) impervious to the liquid to be measured,

characterized in that the enclosure (1) is constituted by a rigid indeformable envelope enclosing at least one body (3), said reference body being held in suspension in said enclosure (1) in a totally immersed condition of this latter by means of at least one suspension member (4) projecting through said at least one opening (5) closed in a sealed manner, of said enclosure (1), this enclosure (1) being movable relative to the reference body (3) to occupy, in the totally immersed condition, a position relative to the body (3) as a function of the density of the liquid within which the device is immersed, this position being detected and/or measured by detection and/or measurement means (2) disposed within the enclosure (1).

2. Measuring device according to claim 1, characterized in that the enclosure (1), movable relative to the reference body (3) to occupy, in the totally immersed position, a position relative to the body (3) as a function of the density of the liquid within which the device is immersed, encloses means (2) for measuring force, such as a force detector, this enclosure exerting, in said position, directly or by means of a piece (9) secured to move with the enclosure, a compressive or tensile force on said means (2) for measuring forces limited in dispersement by the

reference body (3), itself insensitive to the forces exerted by said enclosure (1).

3. Measuring device according to claim 2,

5 characterized in that, in the suspended condition of the reference body (3), the force measuring means (2) are positioned above the reference body (3).

10 4. Measuring device according to claim 2,

 characterized in that, in the suspended condition of the reference body (3) the force measuring means (2) are positioned below the reference body (3).

15 5. Measuring device according to one of claims 2 and 3,

 characterized in that the force measuring means are constituted by a force detector (2) comprising a
20 fixed portion and a movable portion, the fixed portion being coupled to the reference body (3), the movable portion being coupled to the enclosure (1).

25 6. Measuring device according to one of claims 2 and 3,

 characterized in that the force measuring means (2) is secured to an internal wall of the enclosure (1).

30 7. Measuring device according to one of claims 2 and 3,

 characterized in that the force measuring means (2) are secured to the reference body (3).

8. Measuring device according to one of claims 1 to 6,

5 characterized in that the enclosure (1) comprises at least two openings (5) for the passage of a suspension member, each opening (5) being closed respectively by means of a membrane (6) surrounding said suspension member (7).

9. Measuring device according to claim 8,

10 characterized in that the openings (5) for passage of a suspension member are arranged facing each other and are positioned on the enclosure in a manner coaxial with the vertical axis of suspension of the reference body (3).

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10. Measuring device according to claim 8,

20 characterized in that the openings (5) for passage of a suspension member are arranged facing each other and are positioned on an axis substantially perpendicular to the vertical axis of suspension of the reference body (3).

11. Measuring device according to one of claims 1 to 9,

25 characterized in that at least one of the suspension members (4) is constituted by a tubular element for the passage of wires necessary for the electronics of the measuring means (2).

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12. Measuring device according to one of claims 1 to 11,

characterized in that the enclosure (1) has a generally cylindrical shape, preferably ballasted.

5 13. Measuring device according to one of claims 1 to 12,

characterized in that the measuring and/or detecting means (2) are connected to means for processing and analyzing in real time or
10 differentiated and preferably continuously, the signals produced by said measuring means (2).

14. Measuring device according to one of claims 2 to 13,

15 characterized in that the force measuring means (2) are constituted by a deformable body deformed as a function of the position taken by the enclosure (1) with respect to the reference body (3), this position being a direct function
20 of the density of the liquid to be analyzed.